

Abstract:

Method for Determining the Rotor Position of a Synchronous Machine

The invention relates to a method for determining the rotor position of a stationary or slowly rotating synchronous machine by evaluating electrical test pulses that are obtained by applying voltage pulses to the individual phase windings of the stator, wherein changes in the inductance of the phase windings which are caused by saturation of the stator iron depending on the rotor position, are determined in opposite directions or current by calculating differences in the amount of current of two test pulses, and angle values being predetermined by the number of the phase windings are associated with the differences in the amount of current.

To enhance the measuring accuracy of the method, the invention provides that prior to the first test pulse  $I_{\text{meas1}}$ , a bias pulse  $I_{\text{bias}}$  whose polarity is inverted in relation to the first pulse  $I_{\text{meas1}}$  is generated, with the switch-on times  $t_1$  of the associated voltage pulses  $U_{\text{bias}}$  and  $-U_{\text{meas1}}$  being equal, and in that the respectively first test pulse  $I_{\text{meas1}}$  generated in the corresponding phase winding (U, V, W) acts as a bias pulse in the same phase winding (U, V, W).

(Figure 2)